WHAT IS CLAIMED IS:

1. An optical element, comprising:

a substrate having at least one surface on which a layer of material is disposed, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ,

wherein the layer of material comprises particles having a diameter in a range of 1-500 nm and the layer of material has a layer thickness in the range of 10-2000 nm.

2. An optical element according to claim 1, wherein the particles are at least partially transmissive to EUV radiation.

3. An optical element according to claim 1, wherein the particles comprise a material having a complex refractive index close to unity at the predetermined wavelength λ.

4. An optical element according to claim 1, wherein the particles comprise a material selected from at least one of Be, B, C, Si, P, S, K, Ca, Sc, Br, Rb, Sr, Y, Zr, Nb, Mo, Ru, Rh, Ag, Ba, La, Ce, Pr, Ir, Au, Pa and U.

5. An optical element according to claim 1, wherein the optical element is an element selected from optical filters, optical gratings, mirrors, and lenses.

6. An optical element according to claim 1, wherein the layer of material comprises protrusions that form cavities and elevations within the layer of material.

7. An optical element according to claim 1, wherein the cavities and the elevations have a predetermined maximum height difference.

8. An optical element according to claim 6, wherein the protrusions are periodically arranged, and a period of the protrusions is in the range of 200-5000 nm

9. An optical element according to claim 7, wherein the height difference is in the range of 10-500 nm.

10. An optical element according to claim 1, wherein the layer of material has a layer thickness in the range of 10-500 nm .

11. An optical element according to claim 6, wherein the protrusions have a profile selected from a laminar sawtooth profile, a square wave profile and a rectangle wave profile.

12. An optical element according to claim 6, wherein the protrusions are periodically arranged in one direction to form a 1-D grating or in two directions to form a 2-D grating.

13. An optical element according to claim 6, wherein the layer of material is a discontinuous layer.

14. An optical element according to claim 13, wherein an empty space is provided between the protrusions.

15. An optical element according to claim 14, wherein the protrusions are configured to create a 180° phase shift to undesired radiations transmitted through the protrusions.

16. An optical element according to claim 1, wherein the thickness of the layer of material is substantially equal to $\frac{\lambda_{un}}{\left(4 * n_{eff} * \cos(\alpha)\right)}$, wherein λ_{un} is an undesired radiation wavelength, n_{eff} is the average index of refraction of the layer of material and α is the angle of incidence of the radiation.

17. A method for diminishing the intensity of radiation selected from one or more of VUV, DUV, UV, VIS and IR radiation in a radiation beam of an optical

system, the method comprising projecting the radiation beam onto at least one optical element comprising a substrate having at least one surface on which a layer of material is disposed, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ, wherein the surface of material comprises particles having a diameter in a range of 1-500 nm and the layer of material has a layer thickness in the range of 10-2000 nm..

18. A device manufacturing method, comprising:

providing a beam of radiation;

patterning the beam of radiation;

projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material, and

passing the radiation through a layer of material disposed on at least one optical element, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ, wherein the surface of material comprises particles having a diameter in a range of 1-500 nm, and the layer of material has a layer thickness in the range of 10-2000 nm.

19. A device manufactured according to the method of claim 18.

20. A device manufacturing method according to claim 18, wherein the at least one optical element is a lens.

21. A device manufacturing method according to claim 18, wherein the at least one optical element is a mirror.

22. A lithographic projection apparatus, comprising:

a radiation system constructed and arranged to provide a beam of radiation;

a support structure constructed and arranged to supporting a patterning structure, the patterning structure constructed and arranged to pattern the beam according to a desired pattern;

a substrate table to hold a substrate;

a projection system constructed and arranged to project the patterned beam onto a target portion of the substrate; and

at least one optical element within a path of the radiation comprising a substrate having at least one surface on which a layer of material is disposed, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ, wherein the surface of material comprises particles having a diameter in a range of 1-500 nm, and the layer of material has a layer thickness in the range of 10-2000 nm.

23. A device manufacturing method, comprising:

providing a beam of radiation including wavelengths of EUV radiation and wavelengths of at least one undesired radiation;

patterning the beam of radiation;

projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material, and

passing the beam through a layer of material disposed on at least one optical element for selectively filtering out the at least one undesired radiation.

24. A device manufacturing method according to claim 23, wherein the at least one optical element is a mirror.

25. A device manufacturing method according to claim 23, wherein the at least one optical element is a lens.